

## PATENT COOPERATION TREATY

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## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
 US Department of Commerce  
 United States Patent and Trademark  
 Office, PCT  
 2011 South Clark Place Room  
 CP2/5C24  
 Arlington, VA 22202  
 ETATS-UNIS D'AMERIQUE  
 in its capacity as elected Office

Date of mailing (day/month/year)  
 19 March 2001 (19.03.01)

International application No.  
 PCT/KR00/00714

Applicant's or agent's file reference  
 YH00071

International filing date (day/month/year)  
 04 July 2000 (04.07.00)

Priority date (day/month/year)  
 06 July 1999 (06.07.99)

Applicant

HIROKAWA, Koji

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

02 February 2001 (02.02.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
 34, chemin des Colombettes  
 1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Pascal Piriou

Telephone No.: (41-22) 338.83.38

Form PCT/IB/331 (July 1992)

KR0000714

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## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>YH00071</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/KR00/00714</b>	International filing date (day/month/year) <b>04 JULY 2000 (04.07.2000)</b>	(Earliest) Priority Date (day/month/year) <b>06 JULY 1999 (06.07.1999)</b>
Applicant  <b>TECHNOLOGY UNION CO., LTD et al</b>		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawing to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

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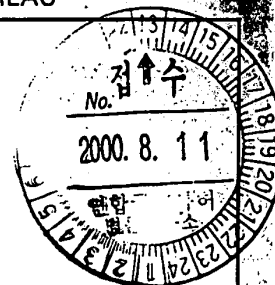
NOTIFICATION OF RECEIPT OF  
RECORD COPY

(PCT Rule 24.2(a))

From the INTERNATIONAL BUREAU

To:

OH, Seung, Keon  
Dong Joo Building  
4th floor  
824-24, Yeoksam-dong  
Kangnam-ku  
Seoul 135-080  
RÉPUBLIQUE DE CORÉE



Date of mailing (day/month/year) 27 July 2000 (27.07.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference YH00071	International application No. PCT/KR00/00714

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

TECHNOLOGY UNION CO., LTD. (for all designated States except US)  
HIROKAWA, Koji (for US)

International filing date : 04 July 2000 (04.07.00)

Priority date(s) claimed : 06 July 1999 (06.07.99)

Date of receipt of the record copy  
by the International Bureau : 17 July 2000 (17.07.00)

List of designated Offices :

AP : GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

National : AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI,

GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,

MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU,

ZA

## ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase
- ☒ confirmation of precautionary designations
- ☒ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer:  Peggy Steunenberg
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

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REC'D 14 NOV 2001

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## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference YH00071	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. <b>PCT/KR00/00714</b>	International filing date (day/month/year) 04 JULY 2000 (04.07.2000)	Priority date (day/month/year) 06 JULY 1999 (06.07.1999)
International Patent Classification (IPC) or national classification and IPC  <b>IPC7 B22C 1/02, B22C 1/18</b>		
Applicant  TECHNOLOGY UNION CO., LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  02 FEBRUARY 2001 (02.02.2001)	Date of completion of this report  27 OCTOBER 2001 (27.10.2001)
Name and mailing address of the IPEA/KR Korean Intellectual Property Office Government Complex-Daejeon, Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer  KIM, Byung Nam  Telephone No. 82-42-481-5979

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR00/00714

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

- ☒ the international application as originally filed
- ☐ the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the claims:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the drawings:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheet \_\_\_\_\_

5. ☐ This opinion has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

**2. Citations and explanations (Rule 70.7)**

Reference is made to the following documents from the International Search Report (ISR0) :

D1:US-A-4840219  
D2:JP-A-05-269542  
D3:JP-A-05-237596  
D4:JP-A-04-202608

1) The present invention relates to the water soluble salt which is high in latent heat and ranges from 280 to 520 °C in melting point and from  $9.8 \times 10^{-2}$  to  $1.2 \times 10^1 \text{ W/m} \cdot ^\circ\text{C}$  in heat transfer coefficient when it processed into a fine powder and molded in a core mold under pressure, whereby the disintegrative core is manufactured from the water soluble salt.

2) D1 discloses the method for preparing a water disintegratable casting core, including the steps of: providing a water soluble molten salt; dispersing 10-50% by weight of a particulate material in said molten salt, the particulate material being non-reactive with the salt and comprised of refractory materials having a mesh size of at least 200; casting the molten salt dispersion into a mold; cooling the mold and the core contained therein; and removing the cooled core from the mold.

3) D2 and D3 disclose the sand core which is heated, dried and then rinsed successively, subjecting to an inorganic salt treatment, drying, and then dipping in the first coating solution to uniformly apply the first coating on the surface of the sand core (To obtain a sand core capable of sufficiently applying a coating and excellent in collapsibility even for a sand core hardened by the warm box method).

4) D4 discloses the core which is made by water soluble substance such as sugar and salt and is set in a mold, and the powder S of noble metal such as gold is filled around its circumference. The core is dissolved away by infiltrating the hot water from many pores therein.

5) For the analysis of the novelty and the inventive step, D1 is considered to represent the most relevant state of the art. The difference between the subject matter of the present application and the method described in D1 is that the water soluble salt in D1 is as high as above 660 °C in melting temperature (Cracks are easily caused owing to the shrinkage upon solidification so that the cores become brittle and are difficult to handle). Additionally, a substantial period of time is required to remove the cores of high pressure cast articles because the cores must be dissolved by use of water, and the core salts thus obtained cannot be re-used.

6) Accordingly, the subject matter of independent claim 1 seems to be novel (PCT Article 33(2)).

7) Since none of the documents D1 to D4 teach or fairly suggest the water soluble salt, alone or in combination with a fine hard powder, is melted in melting point ranging from 280 to 520 °C, so that the core manufactured from said salt can be re-used to bring about an economical favor, the subject matter of the above claim 1 appears to involve an inventive step in the sense of PCT Article 33(3) as well.

8) Claims 2-10 also comply with PCT Article 33(2) and 33(3) as they are dependent claims.

9) Industrial applicability is obvious (PCT Article 33(4)).